



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/680,406

10/08/2003

Steven E. Zimlin

65362-019

4330

7590

02/01/2005

Charlie Kulas  
Carpenter and Kulas, LLP  
1900 Embarcadero Road  
Suite 109  
Palo Alto, CA 94303

EXAMINER

EDWARDS, ANTHONY Q

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 02/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/680,406

Applicant(s)

ZIMLIN ET AL.

Examiner

Anthony Q. Edwards

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION*****Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “controller” and “external control device” must be shown or the feature(s) canceled from claim 5, 6, 14-18, 23 and 25. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-12 and 14-29 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,618,249 to Fairchild. Referring to claim 1, Fairchild discloses a storage device comprising a cabinet (10) capable of holding a plurality of modules (62), see Fig. 2, capable of containing a plurality of storage devices (18), said cabinet having a docking port (42), see Fig. 1A, being configured to electrically connect to said modules, each module (62) of said plurality of modules including a board (82), see Fig. 4, having a plurality of ports (84), each port of said plurality of ports being capable of electrically connecting to a storage device (18), and said plurality of ports being arranged in rows so that a plurality of storage devices are arranged in rows with a lateral surface (64), see Fig. 3, facing parallel to a lateral edge (i.e., top edge) of said board (82) when said plurality of storage devices (18) are connected to said board.

Referring to claim 2, Fairchild discloses a storage device, wherein each module (62) further includes a side housing member (22) having raised portions (24) and lowered portions (50), said raised portions providing a channel to allow airflow through said module. See Fig. 1B and col. 4, lines 25-49.

Referring to claim 3, Fairchild discloses a storage device, wherein each module (62) further includes a top housing member (28) having lateral raised portions (i.e., portion having

Art Unit: 2835

vents 32/34) and lateral lowered portions (i.e., portion below vents), said lateral raised portions providing a channel to allow airflow through said module. See Fig. 1A and col. 3, lines 9-16.

Referring to claims 5 and 23, Fairchild discloses a storage device and method of packaging storage device, wherein each module (62) further includes a bottom housing portion (42) having raised bottom portions (see unit extending from 42 and contacting 16 in Fig. 1A) and lowered bottom portions (surface of 42), said raised bottom portions providing a channel to allow placement of a controller (16) to control storage devices attached to said board and to allow placement of power (14) and control interconnections to said plurality of ports. See Fig. 1A and col. 3, lines 40-45.

Referring to claim 6, Fairchild discloses a storage device, wherein lowered bottom portions (i.e., surface of 42) provide mechanical support to said board. See Fig. 2, which shows 42 supporting module (62) and inherently supporting board 82 as well.

Referring to claim 7, Fairchild discloses a storage device, wherein said board (82) further includes an electrical connector (not shown) capable of electrically connecting said module to said docking port in said cabinet. See Fig. 4 and col. 8, lines 34-40.

Referring to claim 8, Fairchild discloses a storage device, wherein said board further includes a latching mechanism (86) capable of mechanically connecting said module to said docking port (42) in said cabinet. See Fig. 4 and col. 7, lines 50-63.

Referring to claim 9, Fairchild discloses a storage device, wherein each module of said plurality of modules is configured to be electrically disconnected and mechanically removed from a docking port within said cabinet by a single operation, and to allow a single disk drive of

Art Unit: 2835

said plurality of disk drives to be removed without disturbing a connection of other disk drives connected to the board of the module. See col. 5, lines 45-49.

Referring to claim 10, Fairchild discloses a storage apparatus, comprising a board (82) having a plurality of ports (84), each port of said plurality of ports being capable of electrically connecting to a storage device (18), and said plurality of ports being arranged in rows so that a plurality of storage devices are arranged in rows with a lateral surface (64) facing parallel to a lateral edge (i.e., top edge) of said board (82) and control connectors (not shown) on said storage devices face and connect to a port when said plurality of devices are connected to said board (see Fig. 4 and col. 7, lines 28-34), and a housing (62) holding said board and configured to hold a plurality of devices (18) in rows with a lateral surface of said storage devices facing parallel to a lateral edge of said board when said plurality of devices are connected to said board (see Figs. 2-4).

Referring to claim 11, Fairchild discloses a storage apparatus, wherein said housing (62) further includes a side housing member (22) having raised portions (24) and lowered portions (50), said raised portions providing a channel to allow airflow through said module. See Fig. 1B and col. 4, lines 25-49.

Referring to claim 12, Fairchild discloses a storage apparatus, wherein said housing (62) further includes a top housing member (28) having lateral raised portions (i.e., portion having vents 32/34) and lateral lowered portions (i.e., portion below vents), said lateral raised portions providing a channel to allow airflow through said module. See Fig. 1A and col. 3, lines 9-16.

Referring to claim 14, Fairchild discloses a storage apparatus, wherein said housing (62) further includes a bottom housing portion (42) having raised bottom portions (see unit extending

Art Unit: 2835

from 42 and contacting 16 in Fig. 1A) and lowered bottom portions (surface of 42), said raised bottom portions providing a channel to allow placement of a controller (16) to control storage devices attached to said board and to allow placement of power (14) and control interconnections to said plurality of ports. See Fig. 1A and col. 3, lines 40-45.

Referring to claim 15, Fairchild discloses a storage apparatus, wherein lowered bottom portions (i.e., surface of 42) provide mechanical support to said board. See Fig. 2, which shows 42 supporting module (62) and inherently supporting board 82 as well.

Referring to claim 16, Fairchild discloses a storage apparatus, wherein said board (82) further includes an electrical connector (not shown) capable of electrically connecting said module to said docking port in said cabinet. See Fig. 4 and col. 8, lines 34-40.

Referring to claim 17, Fairchild discloses a storage apparatus, wherein said board further includes a latching mechanism (86) capable of mechanically connecting said module to said docking port (42) in said cabinet. See Fig. 4 and col. 7, lines 50-63.

Referring to claim 18, Fairchild discloses a storage apparatus, wherein each module of said plurality of modules is configured to be electrically disconnected and mechanically removed from a docking port within said cabinet by a single operation, and to allow a single disk drive of said plurality of disk drives to be removed without disturbing a connection of other disk drives connected to the board of the module. See col. 5, lines 45-49.

Referring to claim 19, Fairchild discloses a storage apparatus, wherein said housing is made of thermally conductive material. See col. 7, lines 35-40 and col. 8, lines 50-57.

Referring to claim 20, Fairchild discloses a method of packaging storage devices having a control connector on an end surface of each storage device, the method comprising the steps of:

Art Unit: 2835

(A) orienting a first storage device (i.e., top storage device) so that an end having a first storage device control connector (see col. 7, lines 32-35) faces a board (82) and a lateral surface (64) of the first storage device is parallel to a first lateral edge (i.e., top edge) of said board (see Fig. 4);

(B) pushing the first storage device on to said board so that the first storage device control connector becomes electrically connected to a first port on said board;

(C) orienting a second storage device (i.e., bottom storage device) so that an end having a second storage device control connector (not shown) faces a board (82) and a lateral surface (i.e., bottom surface of bottom device) of the second storage device is parallel to a second lateral edge (i.e., bottom edge) of said board (82), and an opposite lateral surface (i.e., top surface of the bottom device) of the second storage device is parallel to another lateral surface (i.e., surface opposite 64) of said first storage device, said second lateral edge of said board being opposite to the first lateral edge of said board (see Fig. 4); and

(D) pushing the second storage device on to said board so that the second storage device control connector becomes electrically connected to a second port on said board. See Fig. 3

Referring to claim 21, Fairchild discloses a method, wherein the board (82) has a plurality of ports (84) arranged in rows, each port of said plurality of ports being capable of electrically connecting to a control connector, the method further comprising the step of: repeating steps A through D until all of the plurality of ports are attached to a storage device. See Fig. 2.

Referring to claim 22, Fairchild discloses a method, further comprising the step of: covering said board, said first storage device and said second storage device with a housing, said



Art Unit: 2835

housing having side housing member having raised portions and lowered portions, said raised portions providing a channel to allow airflow through said module. See Fig. 1B and col. 4, lines 25-49.

Referring to claim 24, Fairchild discloses a method, wherein said board further includes an electrical connector, the method further comprising the step of inserting said housing in a cabinet suited for holding a plurality of housings having a plurality of storage devices and electrically connecting the electrical connector to a docking port (42) in the cabinet (10). See Figs. 1 and 2.

Referring to claim 25, Fairchild discloses a method, wherein said board further includes a latching mechanism (86) capable of mechanically connecting the storage apparatus to an external control device (16), and the method further comprises the step of latching the latching mechanism to the docking port in the cabinet. See Fig. 4 and col. 7, lines 50-63.

Referring to claim 26, Fairchild discloses a method, wherein the steps of latching the latching mechanism and electrically connecting the electrical connector occur by the same action of an operator. See col. 5, lines 45-49.

Referring to claim 27, Fairchild discloses a method, further comprising the steps of unlatching the latching mechanism and disconnecting the electrical connector occur by the same action of an operator. See col. 5, lines 45-49.

Referring to claim 28, Fairchild discloses a method, wherein the action of pushing the first storage device in step B inherently electrically connects and mechanically connects the first storage device to the board in a single operation.

Art Unit: 2835

Referring to claim 29, Fairchild discloses a method, wherein the action of pushing the second storage device in step D inherently electrically connects and mechanically connects the second storage device to the board in a single operation.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairchild. Although Fairchild does not teach the top housing including a plurality of individually removable segments, it is well known that constructing a formerly integral structure in various elements has been held to involve only routine skill in the art (see MPEP 2144.04; *In re Nerwin v. Erlichman*, 168 USPQ 177, 179). It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the top housing (28) of Fairchild into a plurality of individually removable segments, since individually removable segments would allow for removal of separate modules (62) from the front of the cabinet (10) of Fairchild without having to remove the entire top housing from the cabinet.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent No. 5,506,750 to Carteau et al.; U.S. Patent No. 6,621,693 to Potter et al.;

Art Unit: 2835

U.S. Patent No. 5,339,219 to Urich; U.S. Patent Application Publication No. US2002/0050771 to Klrispin et al.; and U.S. Patent No. 6,653,802 to Nelson et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Q. Edwards whose telephone number is 571-272-2042. The examiner can normally be reached on M-F (7:30-3:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2800, ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

January 27, 2005  
aqe

  
**LYNN FEILD**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**